

## SOME NEW INDIAN DRAGONFLIES.

BY

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During the year, 1919, quite a number of new species have been added to the list of Indian *Odonata* and amongst them are two new species of *Gynacantha*. One of these, viz., *G. bainbriggi*, was taken by Mr. Bainbrigge Fletcher at Gauhati, Assam, the other species by myself at Poona, of which the following is the description:—

*Gynacantha millardi*, sp. nov.

Several males and females, Poona, Bombay, Deccan, October-November and February to March.

Male and female alike.

*Head* labrum, face and frons pale green without any markings. (The usual T-shaped mark is absent in this species.) Eyes in juvenile specimens a deep blue, in adults an olive green with a dark brown cap above.

*Prothorax* and *thorax* bright foliage green, the female having a brownish tinting on the dorsum. No markings whatever.

*Abdomen* a pale fawn, the sides of the first three segments green as in the thorax and more so in the male than in the female. Oreillets brown.

*Anal appendages* very narrow and long, especially in the male, fringed internally with longish hairs. Legs brown.

*Wings* long and broad, hyaline, stigma a pale brown. Forewing with 19 annodals, hindwing 14, forewing with 13 postnodals, hindwing 15, hypertrigones with 3 nervures, trigones with 3, the inner with a nervure running from its centre to the proximal side, loop with 10 cells.

Length of hindwing 44 mm., of abdomen 46 mm.

This species is a night-flyer, not appearing on the wing until dusk, after which it can be seen for a long time silhouetted against the sky as it flits swiftly up and down. Its principal food appears to be mosquitoes. There appear to be two broods during the year, the one appearing in October and lasting until the end of November, the other in February when teneral specimens are seen. It is moderately plentiful during the whole of March and disappears abruptly from the beginning of April.

## Tribe AGRIONINI.

*Mortonagrion*, gen. nov.

*Head* not bearing any post-ocular spots but the eyes margined inwardly and narrowly with bright colouring.

*Prothorax* simple, the posterior lobe large and prominent, broadly arched.

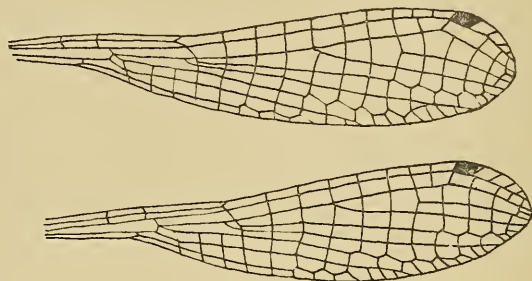
*Thorax* with the anterior border laminated and projecting forward to mesh with the posterior lobe of the prothorax.

*Abdomen* very slender, very gradually dilating from the 7th to the 10th segment. Anal appendages highly specialised, 10th segment with a bifid dorsal tubercle.

*Wings* hyaline, petiolation ceasing proximal to "ac", stigma equal in both wings, rhomboidal but the distal and posterior borders rather longer than the proximal and costal respectively, are distal to the 2nd antenodal nervure, its distance from that nervure being equal to the length of the costal border of the quadrilateral, postnodal nervures 7 to 9. "ac" nearer to the 2nd antenodal nervure in the hindwing, about midway in the forewing,

meeting "ab" well distal to its commencement, "ab" continued outwardly in the same straight line as "Cu2", that is to say, the junction of the two is not angulated. Quadrilaterals differently shaped in the two wings, that of the forewing being more angulated and with the costal border only half the length of the posterior, that of the hindwing with the costal border two-thirds the length of the posterior. Female without a ventral spine to 8th segment.

*Mortonagrion varralli*, sp. nov.



Fore-and hind-wings of *Mortonagrion varralli*.

Several of both sexes from Pawai Lake near Bombay, 14th March 1920.

Male. Length of abdomen 23-25 mm., of hindwing 14-15 mm.

Head, labrum and epistome pale blue, vertex pale reddish brown, occiput a similar colour except for a small, oval spot of pale blue bordering the eye inwardly. Eyes slatey blue with a reddish tinge above.

Prothorax reddish brown, pale blue at the sides and narrowly anteriorly.

Thorax pale reddish brown on the dorsum and upper part of sides. A narrow, pale blue humeral stripe. The sides pale blue except for a diffuse pale brown stripe on the 2nd lateral suture. Legs pale brown.

Abdomen similar in colour to the thorax. Fine, apical, dark brown annules to all segments. The ground colour deepens dorsally near the apex of each segment, but there is a clearer annule between this deepening and the brownish black annules. These latter followed by fine, pale blue, basal annules, which on the 8th segment lengthens to cover about two-thirds of the segment. The apical border of this conspicuous blue marking deeply notched in the mid-dorsal line. The sides of the 1st and 2nd segment pale blue. Beneath whitish.

The dorsal, apical border of the 10th segment presenting a bifid tubercle very similar to that of *Ischnura senegalensis*. The anal appendages seen from above show the superior divergating, the inferior converging, superior slightly shorter than the inferior, broad at the base, truncated and directed downwards to almost meet the inferior, the latter broad at the base, tapering strongly and curving inwards so that their tips almost meet, curving upwards.

Female exactly similar to the male except for the blue marking on the 8th segment which covers only one-third of it and has a diffuse unnotched border. No spine on the ventrum of the 8th segment.

Hab. In dark, shady jungles, keeping amongst undergrowth. Never comes out in the sunlight. Breeding apparently in wells. Pawai and Vihar Lakes near Bombay.

*Pseudotramea prateri*. sp. nov.

1 ♂ from Turzum Tea Estate, Darjiling, coll. O. Lindgren.

*Head* globular; eyes broadly contiguous, reddish brown above blackish brown at the sides and beneath; suture flush; face broad and flattened yellowish brown, the labrum ochreous and edged with black which has a metallic sheen; vesicle high, flattened at the summit, not notched, ochreous; occiput small, reddish brown.

*Prothorax* small, hidden completely.

*Thorax* bulky, coated with long, coarse hair, reddish brown on the dorsum, golden brown at the sides where the lateral sutures are mapped out obscurely with broken, black lines.

*Legs* black. The hind femora with a row of *ca* 20 short, robust and gradually lengthening spines, tibial spines long and numerous, claw hooks robust, situated near the end of the claws.

*Wings* long and tapering, reticulation close, node slightly proximal to the middle of wing, trigone in the forewing nearly 3 cells distal to the line of the trigone in the hind, trigone in forewing very narrow, its costal side much less than half the length of the proximal, traversed once only; trigone in the hindwing narrow, entire, its proximal side convex outwards and in line with the arc; sectors of arc separate nearly to their origins in the forewing, a long fusion in the hind; are between the 1st and 2nd antenodal nervures; antenodal nervures  $11\frac{1}{2}$ - $12\frac{1}{2}$ , the final incomplete, the distance between the first two much greater than between the others; only 1 cubital nervure to all wings; no supplementary nervures to the bridge; stigma brownish, that of forewing nearly twice as long as that of the hind; 4 rows of cells in the discoidal field which is of even width throughout; subtrigone in the forewing nearly square, formed of 6 cells; Rspl. very strongly arched, 3 rows of cells between it and Rs.; Mspl. well developed strongly curved in the forewing, flattened in the hind; the Rs. and M4. nervures strongly curved towards the termen near their ends, in the hindwing, M4. and Mspl. approximate at the angulation; loop very long and narrow, the toe not markedly broadened, divided cells at the trigone and external angle; anal area distinctly divided up into an outer area of more open cells and an inner of closely packed, flattened cells arranged in oblique rows. No basal markings whatever to either wing, the whole wing being hyaline except for a single cell in the anal angle which is brown and chitinous. Length of hindwing 46mm.

*Abdomen* 32 mm., without the anal appendages which are 4 mm. in length. Transverse ridges on the 2nd and 3rd segments, 1st and 2nd segments dilated, especially dorso-ventrally, 3rd and 4th slightly constricted and the remainder tapering to the end, a golden brown in colour, the apices of all segments and the dorsal surfaces of the 8th to 10th segments black. Anal appendages bayonet-shaped, the superior twice as long as the inferior, brown.

Sexual organs of the male, *tramea*-like. Lamina depressed and broad, not fissured; tentaculæ carrot-shaped, long and tapering and ending in a short, downwardly curved spine. The ends divergent, the external tentaculæ obsolete. Lobe long, high and narrow.

This specimen, which is closely allied to *Tramea*, differs from that genus by the greater separation of the sectors of the arc, by the wide space and number of cells between Rs. and Rspl. by having transverse ridges only on the 2nd and 3rd segments and none on the 4th and by the wings being quite immaculate. The latter characteristic is not due to age as the specimen is fully adult. I have named it after Mr. S. H. Prater of the Bombay Natural History Society's staff.

*Protosticta lindgreni*, sp. nov.

1 ♂ from Turzum Tea Estate, Darjiling.

*Head* labrum and antoclypeus pale greenish white, the former bordered with black; remainder of head a shiny black with a bluish metallic reflection; the ocelli bright amber and very conspicuous in their dark setting; eyes pale yellow with a black cap above and a narrow, black, equatorial belt.

*Prothorax* black with a broadish, pale yellow, subdorsal stripe on each side.

*Thorax* black on the dorsum, yellow at the sides. A black line along the lateral suture. Legs yellow, the extensor surfaces black. Wings hyaline, stigma blackish brown, postnodal nervures in forewing 16.

*Abdomen* very long and attenuated, almost as long as in *P. gravelyi* Laid. 1st segment black on the dorsum, the sides and an apical annule yellow, 2nd segment broadly black on the dorsum, the sides yellow, 3rd to 10th segments black at the apices, yellow at the base, these two colours gradually blending into one another.

*Anal appendages*, yellowish, of about equal length, equal to the length of the last two abdominal segments or nearly so. The superior broad at the base and with the outer half bent sharply downwards and shaped like the blade of a kukri; the inferior shaped like the horns of stag-beetle, twisted at the middle and convergent at the apices. A long spiny process springs from just beyond the middle of each process on its inner side and almost meets its fellow across the middle line. At the base of the inferior appendages is a short, stout spine directed backwards and upwards.

This single specimen is named after Mr. O. Lindgren of Darjiling to whom I am indebted for it. It bears a superficial resemblance to *P. himalaica*, Laid. but an examination of the anal appendages serves easily to distinguish them.

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